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# THE FARM INDEX

April 1969

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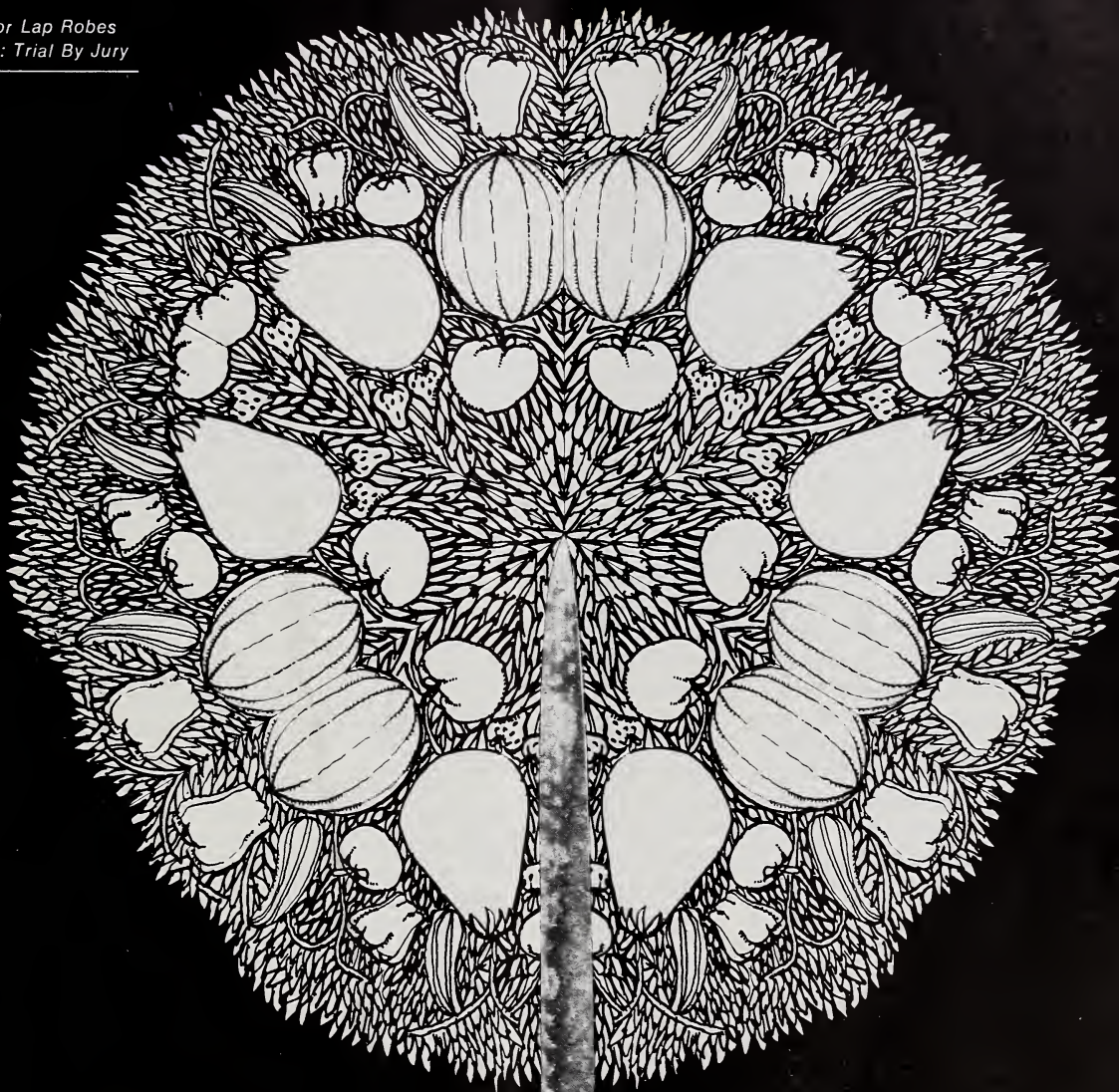
of

Agriculture

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**WINTER  
PRODUCE**

## THE AGRICULTURAL OUTLOOK

*Farmers plan to plant:* More soybeans, 1.4 million acres over 1968; more cotton, up 1.1 million acres; and more flaxseed, up 0.5 million acres. But less spring wheat, down 1.6 million acres; and less corn, down 378,000 acres. These, at least, were farmers' planting intentions as of March 1 at the time of the 1969 feed grain, wheat, and cotton program signups and before soybean price supports for the year were lowered 25 cents a bushel. Actual plantings could thus vary considerably from these figures.

*Meanwhile back on the ranch.* Cattle and calf numbers on farms and ranches rose slightly in 1968. The count was 109.7 million head on January 1, 1969. Beef cattle numbers were up 1 percent—about 1.2 million—while dairy cattle were down 3 percent—about 0.6 million.

*Top 10 beef States.* Texas, Iowa, Nebraska, Kansas, Oklahoma, Missouri, South Dakota, California, Colorado, and Montana ranked highest in 1968 beef cattle numbers, in that order. Together, these States held almost 58 percent of the U.S. beef cattle inventory on January 1 of this year.

*U.S. rice bowl overflowing.* This country's rice supply continues to mount, reaching 112 million hundredweight for 1968/69, despite a decline in yield per acre. Domestic use of rice as food, at 25 million cwt. in 1967/68, is likely to set another record this year. Brewers' use in beer could top last year's 5.4 million cwt. by 10 percent. And farmers' use as seed is expected to use up about 3 million cwt.

*Exports outlook for rice:* In view of abundant world supplies, U.S. rice exports this marketing year may not be large enough to prevent a carryover two to three times as large as last summer's 6.8 million cwt.

*Rice prices follow unusual pattern.* Farm prices of rice were at their height in August and November of this marketing year. Typically, rough rice prices are lowest at harvesttime and rise from then on. The August price pickup stemmed from the small carryover and late harvest in the South. The November price spurt resulted from large purchases in anticipation of the dock strike at Eastern and Gulf ports.

*1969 rice crop expected to be second largest despite slated cut of 10 percent in acreage allotment.* U.S. rice growers intend to plant 2,142,000 acres in 1969. In 1968, farmers planted 2,372,000 acres in response to an allotment of 2,400,602 acres. If yields are average and other rice trends continue, 1969's total harvest may reach 101 million cwt., 4 percent below 1968 but the second largest rice crop on record.

*World crop off slightly.* The 1968/69 world rice crop (excluding Communist Asia) is estimated at 181 million metric tons of rough rice—slightly below last year's record 183 million metric tons, but still 13 percent more than the 1960/64 average. Rice acreage worldwide is now forecast at a record 238 million acres.

*Tobacco tally.* Tobacco use in 1968/69 is likely to reduce carryover once again. The season's total use may top 1968's crop by about 0.3 billion pounds. Result: about 3.8 billion pounds in storage, down from last year's 4.1 billion pounds. This year's crop may be up about 10 percent, but this would still give a 1969/70 supply a little under this year's level.

*U.S. smokers cut down use of cigarettes.* In 1968, U.S. smokers consumed 546 billion cigarettes—0.6 percent less than the previous year. This is the first decline in total U.S. consumption of cigarettes since 1964, the year the Surgeon General's report on smoking was issued.

*Per person smoking down, too.* At 4,180 cigarettes (209 packs) per person, cigarette use by adults was 2 percent below 1967. Despite this, total U.S. consumption in 1969 may hold at the levels of the last 2 years, since the size of the adult population is steadily increasing.

# THE FARMER'S MONEY MARKET



*Seeds, fertilizer, feeder livestock, machinery, irrigation, all come to mind as farm production items. But what about credit—the most essential ingredient of them all?*

A typical bill for a farmer's production items and other necessities bought at the old General Store used to read something like this:

8	bsls corn @ 50 c bsl	4.00
27½	bsls oats for feed @ 37½ c bsl	10.31
1½	lbs Rutabaga seed @ 1.00 lb	1.50
3	sacks flour @ 63⅓ c sack	1.90
28½	lb rope	.20
1	pulley	.90
1	rasp	.60
4	axes @ 91½ c ea	3.66
1	plow	4.37
AMT DUE		27.44

Today's bill for comparable farm necessities is longer, for

larger quantities, and is often accompanied by a punchcard marked "Do not fold, spindle, or mutilate."

What's more, with increasing frequency, the bill is paid for not with cash saved by the farmer, but with money borrowed from a bank or other farm creditor.

A booming big business today, loans for agricultural purposes exceeded \$55 billion at the beginning of 1969.

To the modern farmer, this borrowed money is as necessary as seed, fertilizer, replacement livestock, and other inputs. Without it he is unable to operate on a scale that will bring him the greatest returns. And he rarely can achieve the full potential of his farm.

Thus, supplying farm credit has become a major activity of many banks and similar businesses, and an important activity of other firms and individuals—a-

long with a number of government agencies.

The farmer generally has a wide choice of lenders. He can usually pick one or more as best suits his needs. And with the burgeoning use of credit by farmers, many of these lenders have trained agricultural representatives on their staffs.

Half the money that farmers borrow is in the form of farm real estate mortgage loans.

Life insurance companies, commercial banks, and individuals provide about 75 percent of all this type of credit. Banks, merchants, and individuals provide 80 percent of all other farm credit.

As a group, banks and financial institutions who sell the use of their money to farmers are low risk lenders. Their interest returns are typically modest and they do not take long chances on the possibility of getting their money back.

The Farmers Home Administration (FHA) makes loans to farmers who can't get adequate financing from other sources. About \$1,260 million worth of FHA-insured real estate loans to farmers were outstanding on October 1, 1968.

Credit to farmers is also supplied indirectly through producer and other cooperatives, with rural electric and telephone cooperatives receiving Federal loans under the Rural Electrification Act.

Individual farm lenders are often people who loan the amount of equity they have in land they sell to a friend, associate, or member of the family.

A retiring farmer, for example, will sell his farm to someone he knows will run it properly but who can't make a down payment or obtain a large enough mortgage. Frequently, the selling farmer will do this under a land contract in which the downpayment may vary from nothing to usually no more than 30 percent of the purchase price.

He then retains the title until a certain agreed-to part of the price of the land has been paid.

The advantage to the selling farmer is usually a favorable sale price and a tax break on any profits he may make on the sale. The advantage to the buyer is the use of land which he was unable to finance through any other credit sources.

After a land contract has run for some years and the new farm operator has sufficiently improved his financial condition, he often will refinance his land contract with an institutional lender.

Close to 40 percent of all transfers of farm property and 45 percent of the dollar volume of all credit purchases of farmland are currently handled in this manner, either by land contract or seller-held mortgage.

Merchants and dealers who sell to farmers also extend credit. But they do this primarily to promote

sales of goods and services. To the machinery dealer, the interest return on the loan he makes to the farmer is less important than the sale of a tractor or combine. Because his profits come from both sales and interest, and he is selling "hard goods" that can be repossessed after a certain number of payments are missed, he can afford to make higher risk loans.

Sellers of "soft goods" like fertilizer and feed must look at farm credit differently, however. Their products, once used, are nonreturnable.

A debt for fertilizer or feed customarily must therefore be paid from the income of a single year. But payment for machinery is usually made in installments extending over the equipment's productive life, often several years.

Despite the enormous growth of farm debt since World War II, latest estimates show that farmers have substantially more farm assets than total debts.

The great bulk of farm debit is \$10,000 or more a year. But these operators, as a group, have much more in their savings accounts than operators of small farms who owe less total money. (1)

## Cotton Farmers Mix Both Men And Machines To Raise Returns

Many a Mississippi Delta cotton farmer wonders whether he's getting the most out of the mixture of manpower and machine power that he uses on his land.

Take Farmer X with 135 Yazoo-Mississippi Delta acres who expects a yield of 500 pounds of lint per acre.

He doesn't own a mechanical picker. But he wants to harvest his crop the cheapest, fastest way.

Should he buy a used one-row

or new two-row mechanical picker, hire a machine and operator, or hire a 15-man crew of handpickers to bring in his entire crop?

Or should he harvest 200 pounds of premium quality lint per acre early in the season—using a hired crew of handpickers—and harvest the rest later by owned or hired machine?

Or should he hire a machine to harvest 50 acres and pick the rest either with his own one-row or two-row machine?

An Economic Research Service review of 1961-62 statistics shows that when he has the choice of harvesting his entire crop by any method, Farmer X would be better off buying a mechanical picker.

A used one-row machine would provide both the lowest unit cost and the lowest total harvesting cost.

If Farmer X chooses to hand harvest 200 pounds of premium quality lint per acre, the lowest cost alternative for harvesting the balance is to hire a machine and operator.

Buying a used one-row machine instead of hiring one would cost Farmer X about \$6.80 per acre more; a new two-row machine would add \$10 more per acre.

If he prefers to hire a machine and operator to pick 50 acres, buying a used one-row picker would then be the cheapest way to harvest the remaining 85 acres. Buying a new two-row machine instead would cost him about \$11 more than custom harvesting.

Suppose instead of 500 pounds of lint per acre Farmer X expects a bumper yield of 900 pounds per acre. Which harvesting method should he choose?

Because both hired machines and hired hand crews are paid a certain amount per bale of cotton harvested, costs per acre for these two methods are bound to rise. Buying a used one-row or



## THE COTTON HARVESTING COSTS OF FARMER X

(135 acres—500 pound yield expected)

ITEM	IF picking entire crop by one method only				IF picking 200 pounds per acre by hand, rest by other method				IF picking 50 acres by hired machine, rest by other method		
	One-row used	Two-row new	Hired Machine	Hand	One-row used	Two-row new	Hired Machine	Hand <sup>1</sup>	One-row used	Two-row new	Hired Machine
Acres picked <sup>2</sup>	135	135	135	135	135	135	135	135	85	85	50
Hours of use	359	205	—	—	359	205	—	—	226	127	—
Pounds per acre	500	500	500	500	300	300	300	200	500	500	500
Dollar cost per 100 pounds lint	4.38	6.10	5.00	9.30	<sup>3</sup> 4.38	<sup>3</sup> 6.10	5.00	10.40	4.50	7.15	5.00
Dollar cost per acre	21.90	30.50	25.00	46.50	21.90	30.50	15.00	20.80	22.50	35.75	25.00
Total dollar harvesting cost	2,956	4,118	3,375	6,278	<sup>4</sup> 5,764	<sup>4</sup> 6,926	<sup>4</sup> 4,833	2,808	<sup>5</sup> 3,162	<sup>5</sup> 4,289	1,250

<sup>1</sup> Harvested in single operation. <sup>2</sup> Picked twice over. <sup>3</sup> Owned machine cost per acre remains constant unless the number of times over or acres covered is changed. <sup>4</sup> Includes \$2,808 for hand harvesting. <sup>5</sup> Includes \$1,250 for hired machine harvest of 50 acres.

new two-row mechanical picker becomes more advantageous under these conditions.

Suppose, instead of the larger yield, Farmer X continues to get 500 pounds of lint per acre but enlarges his holdings from 135 acres to 175 acres. His picking costs per acre won't rise if he uses either a hired machine or hand labor—since he pays by the bale and not per acre harvested.

But buying his own machine and operating it on the increased acreage would still be cheaper for Farmer X. His total harvesting costs would be less than with any other method.

If Farmer X owns a mechanical picker he can use it any time. And his capital investment has already been made. Thus per acre

harvesting costs include operating costs only.

In this case Farmer X would use his machine as extensively as possible, since other alternatives would not normally be lower than the cost of operating his own mechanical picker.

Even moderate handpicking would raise costs substantially.

As happens in other farm enterprises, the cotton farmer's need to get the most efficient use from his machine frequently pressures him to acquire more acreage.

Should he increase his acreage beyond the physical capacity of his machine, however, he'll have to hire a crew of handpickers or a machine and operator to complete his harvest. (2)

## Tight Money, Strong Demand For Funds, Raises Cost to Farmers

Farm operators last year paid a record amount of interest. Payments on money borrowed by farmers reached a new high of \$3.0 billion in 1968.

This was 9.7 percent more than in 1967 and almost three times the charges recorded a decade earlier.

About half the interest cost went for long term real estate debt and half for short and intermediate term debt.

The increase was not all due to higher interest rates, however. The 1968 record also reflects the increased demand by all sectors of the economy for money and the

fact that farmers borrowed more money than ever.

One reason: Production items such as seed, feed, machinery, and pesticides cost them more last year. Another: Farmers today have fewer inhibitions about seeking loans to pay for such items.

Farmers who borrowed money for real estate purposes paid interest at an average rate 0.50 to 0.75 percentage point higher last year.

And farmers who obtained all other types of farm loans in 1968 found their rates went up an average 0.30 to 0.40 percentage point over the 1967 figure.

A survey of farm banks showed an average rate of interest ranging from 6.94 percent to 7.61 percent on farm operating and feeder cattle loans in 1968. And in January 1969, there were more production credit associations charging at least 7 percent on loans than there were a year earlier.

Merchants, dealers, and other lenders seem to have been following the lead set by institutional lenders.

Federal land banks and life insurance companies also charged higher interest rates on new farm real estate loans in 1968 than they did during the previous year.

The higher interest rates paid by farmers reflect a situation common to the U.S. economy as a whole—stronger demand and smaller supplies of loanable money.

Despite the tight money, farm operators with proven management and repayment ability were able to secure adequate loans in 1968. But those with little farming experience or with marginal operations may not have received what they believed to be adequate loans.

Total farm debt increased slightly less in 1968 than in any year since 1964. Though the buildup of farm real estate loans equaled the largest dollar in-

crease of any year within the last decade, non-real estate loan growth was the smallest since 1965.

Farm real estate debt reached a record \$27.8 billion on December 31, 1968, an increase of 9.1 percent over the previous year.

Farm debt other than real estate also reached a record at \$25.3 billion by the end of the year. But its growth was only 7.6 percent, compared to an average annual growth rate of 11 percent for the previous 3 years. A slowdown in machinery purchases probably kept down the increase in non-real estate farm debt.

What can the farmer expect in the near future? Adequate loan funds for production use in 1969—except in some localized areas.

But demand for farm loans is likely to continue strong. Many farmers probably will buy big ticket items they postponed earlier in hopes that interest rates would go down.

Thus, there is little likelihood that interest rates on farm loans will ease during first half of 1969. In fact, due to recent activities in the money markets, interest rates could increase even further before declining.

Result: Farmers will probably pay a total of \$3.2 billion in interest during 1969. (3)

### System—Not Lot Size—Matters Most to Nebraska Feedlotters

System of feeding or size of the lot? Which is more likely to affect cattle feeders' costs per pound of gain?

System seems to be even more important than size, judging by interviews with 139 cattle feeders in five eastern Nebraska counties. Their lots ranged from 50 to over 2,000 head.

Out of four feeding systems used, feeding calves was more efficient than feeding yearlings, 2-

year-olds, or calves and yearlings together. Here are the comparative average costs per pound of gain.

<i>System</i>	<i>Cents</i>
Calves	21.09
2-year-olds	23.36
Yearlings	24.28
Calves and yearlings	24.33

Cost differences were mostly due to feed expenditures, which in turn varied mainly according to purchased weight of the animal.

The lighter the animal at purchase, the longer its deferred feeding period. And the longer the deferred feeding period, the more roughage, pasture, and crop aftermath was consumed—and the cheaper the weight gain.

Feed costs per pound of gain among the four systems averaged between 68 and 77 percent of total costs and tended to remain constant or increased along with the size of operation.

Although feed costs followed the same pattern in all four systems, labor costs decreased as the size of operation increased. Labor costs, a relatively minor item, varied from 4 to 7 percent.

Feed costs and total costs were not significantly related to size of operation in the calf, yearling, and calf and yearling systems; but they were related to size of operation when feeding 2-year-olds. Here the costs increased as size of operation increased.

Feeding efficiency and profitability, however, are not synonymous. In terms of profitability, the most efficient system was not the most profitable. In 1961 the 2-year-olds were the most profitable, calves were second, followed by yearlings, and calves and yearlings.

Differences in the order of efficiency and in profitability were due to differences in price spread, which varied from a negative \$2 per 100 pounds for calves to a plus \$1.59 for 2-year-olds. (4)

## Trend in Fruits and Nuts Shows More Strawberries, Less Pears

The farmer with the strawberry patch appears to be doing better these days than the man with the pear orchard.

Strawberry output in this country increased 87 percent from 1944-48 to 1964-67 while pears dropped 23 percent.

This shift in emphasis is attributed mainly to changing American tastes. But other reasons include changes in the way these fruits are grown, processed, and marketed.

Strawberries and pears, however, represent extremes in the fruit production trend of the past 24 years. Output of all fruits and nuts averaged a 15-percent overall increase.

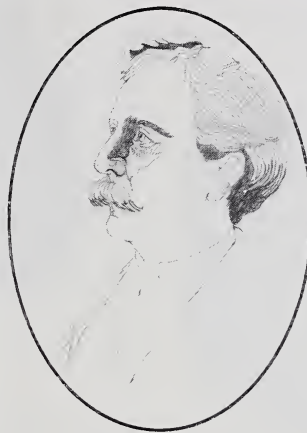
Over the same period, a 75-percent gain in output per acre allowed fruit and nut growers to increase their total production on 22 percent less land.

Meanwhile, fresh fruit sales between 1944-48 and 1964-67 dropped from slightly over half the total output to a little over a third of the total—from 9.0 million to 6.7 million tons. During this period the amount of fruit going to processors went up from less than half of total production to almost two-thirds—from 7.6 million to 11.9 million tons.

In the 1964-67 period, 10 crops dominated both the fresh and processed markets for fruits and nuts. They are, in order of size of output, oranges, grapes, apples, grapefruit, peaches, lemons, pears, cherries, strawberries, and pecans.

All told they accounted for 86 percent of the total value and 93 percent of the total production of fruits and nuts. And their worth as individual crops was more than \$50 million each during the 1964-67 period.

The average increase in value from 1944-48 to 1964-67 of these to 10 crops was 38 percent. (5)



## Men and Milestones

### AMERICA'S HOUDINI OF AGRICULTURE

*In the late 1870's, a California fruit grower sends Luther Burbank an order for 20,000 young prune trees to be delivered in 10 months. "Impossible!" say other nurserymen. Burbank, however, accepts the order and plants almond instead of prune trees. When the almond trees are big enough, he carefully grafts thousands of prune buds onto the saplings. Result: The fruit grower receives his order of prune trees ahead of schedule.*

\* \* \*

Luther Burbank, the world's best known horticulturist, is said to have developed more than 800 new varieties of flowers, fruits, and vegetables, ranging from the Shasta daisy to the Burbank potato.

He probably did more than any other single person has ever done to stimulate the development of new plants and plant species. And in doing so,


he created the base for scientific plant breeding as we know it today.

Even more remarkable was the fact that he did it without a formal scientific education. His interest seems to have been sparked by Charles Darwin's theory of natural selection. Burbank first applied it to plants on his Massachusetts new type of potato.

After this success he moved to California. There he crossed imported plums with domestic varieties to produce the improved types universally marketed today.

Similarly, he experimented with nuts and flowers.

In 1877, Burbank issued his first nursery catalog which included his newly developed items. Yearly thereafter he issued such catalogs, each of which contained new varieties or improved plants. Not all of the horticulturist's experiments lived up to his expectations but many proved to be of lasting importance. (6)



## which way part-time farmers?

*Sometimes they're headed into full-time farming. Other times they're headed out. Whichever the direction, part-time farming is the preferred route for job moves.*

Part-time farming is the way some people gain entry to agriculture. More often, though, it's the way full-time farmers make their exit.

Over the years, economists and sociologists in ERS and the Cornell University Agricultural Experiment Station have been studying the occupational adjustments made by farm families in St. Lawrence County, N.Y.

The county, like many others in the Nation, has long been dependent on agriculture—dairying in particular. And like many other rural counties, it has seen its agricultural base eroded by changes in farm technology.

How have St. Lawrence's farm families reacted to this change?

Of the 377 farm families that the researchers kept close tabs on between 1949 and 1962, only 26 pulled up their stakes and moved out of the area. By far the greater proportion of the established farm families preferred to restructure their lives in the locale where they'd lived and raised their children.

About four out of five of the farmers considered a job change, and many did make a change. Generally, however, the men tried to move in a direction which would lessen their dependence on agriculture but not completely divorce them from it. In some cases, they even expanded their farm operations; and a few ex-farmers who had gone to other occupations shifted back into

farming during the period of the study.

But whether the move was toward or away from full-time farming, most operators preferred to make the transition gradually—by means of part-time farming. Only a few took the big step of changing occupations all at once, and when they did so, it was usually not by choice but because circumstances forced them to do so.

Of the men who considered making a shift from full-time to part-time farming, 95 percent actually did so at some point between 1949 and 1962. Generally they added a full-time nonfarm job—and kept the farm going by shifting much of the work to other family members or a dependable hired man.

Most farmers parted from part-time farming reluctantly—when some change in family or farm circumstances made holding down two jobs impossible. A very high proportion of the men who considered such a change—shifting from part-time farming into full-time nonfarm work exclusively—actually took this step.

A few went the other way, however, and moved back into full-time farming. Some did this because they could no longer carry two jobs at once. Others did so because they lost their nonfarm jobs. And some of those who switched into full-time farming were men who had been working at off-farm jobs only until they could get re-established in farming.

A different group of part-time farmers were the men who worked predominantly in off-farm jobs but also maintained a part-time farm operation. Some of these were young people taking their first gradual step toward full-time farming. Others were older couples who saw agriculture as part of their retirement plans. A few were middle-aged and wanted a farm to provide work for their teenage children.

While most of the St. Lawrence families eased themselves in and out of agriculture through part-time farming, a few made the shift abruptly.

Farmers who went directly from full-time farm jobs into full-time off-farm jobs were generally forced to do so by farm or family situations. Only about half the men who considered such a step actually took it.

A very few ex-farmers returned to full-time farming after having given up agriculture. Often it was because they lost their nonfarm employment or because changes in the nonfarm job made it undesirable.

A number of St. Lawrence County farmers reacted to the technological change in agriculture, not by changing occupations, but by expanding operations. Though they were spared the problems that go with job shifts, they didn't improve their incomes much. The study showed that dollar farm incomes in St. Lawrence County were just about the same in 1963 as in 1949, despite a gain in farm size. (7)

### *Home Is Where the Heart Is*

A farmer's heart remains strongly attached to farming even though he may leave farming to make a living doing something else. This is one of the reasons why many ex-farmers still live on the family farmstead.

In St. Lawrence County, nearly half the families who had abandoned agriculture as a source of livelihood during 1949-62 clung to their farm dwelling. Living on the land they'd farmed made it easier for them to go back if something happened to their nonfarm job.

Of the 26 families who left St. Lawrence County, nearly a third remained in agriculture. A survey in 1963 showed that three of these farm operators were still farming or ranging, three were farm managers, and one was in an agriculturally related business. (7)

## **Getting Hired Hands Gets Tough When Cities Drain Off Local Labor**

Cities don't encroach only on a farmer's land. They also encroach on his labor supply.

Time was when a farmer could always count on a neighbor's son or a handyman in the village nearby to help out with seasonal tasks. But now the son and the handyman are apt to have full-time jobs in town.

In the Northeast, particularly, farmers have to compete for workers with merchandising, construction, manufacturing, and other nonfarm industries.

Since 1960, all 13 New England and Middle Atlantic States have shown large increases in nonfarm employment. At the same time, the number of unemployed people looking for work declined by over 40 percent in five of these States. This has reduced supplies in the reservoir of local labor from which the farmer draws his hired help.

Machines have proven a good substitute for hand labor in many parts of the country—but they aren't effective substitutes on many Northeast farms. Where fields are small, irregularly shaped, or hilly, machines can't operate efficiently.

Thus, if operators expand their farm size (and they have), they must devote more labor to the operation. The family labor supply is soon exhausted and hired labor becomes important.

The tight labor market will probably continue to be a problem for farmers in the Northeast. To attract skilled workers, farm employers may have to make farmwork more attractive by offering full-time jobs with less loss time, a regular workweek that provides time off for personal business, wages as good as those for nonfarm jobs of equal skill, paid vacations, and possibly paid health insurance and some type of retirement benefit. (8)

## USDA Airphotos Fill the Bill For Businessmen in Many Industries

Businessmen who like to get a bird's-eye view of things are big buyers of USDA airphotos. They ordered some 262,000 prints in 1966—making them the No. 1 group of non-Federal customers.

Far and away the biggest business buyers were those involved in agriculture. Nearly 12,000 requests for USDA airphotos came from farmers and ranchers. Many of them keep field records by noting data directly on enlarged prints. Most of the farm orders were small.

The forest industry placed fewer but much larger orders for USDA airphotos to use in access road mapping, disease control, cutting plans, and mensuration (volume determination) for both purchase and sale of timber.

A lot of airphoto orders also came in from agriculture supply firms. They find the photos helpful in spotting fields for direct application of seeds, fertilizer, pesticides, and herbicides, either by truck or by air. Other users in farm-related businesses included attorneys, banks, and railroads.

Real estate men placed more than 4,000 orders for USDA airphotos in 1966. They use them particularly in sales work, and also in planning and development. Most of their orders are small.

Airphoto orders placed by construction, extractive, and utilities industries were generally very large and uses ran the gamut—mapmaking, geologic exploration, soil surveys, highway and rights-of-way planning, market research, and urban and rural development.

Other big non-Federal buyers were State and local government units. Chief customers in this category were State agencies concerned with conservation, forestry, and highways and local units doing assessment and plan-

ning in their communities.

Educational and research groups, though they didn't order as many USDA airphotos as other non-Federal customers, put the photos to some of the most unusual uses. USDA airphotos were used in studies of village structure (anthropology), ancient locations (archaeology), patterns of cultural development in the past (history), social structure (sociology), population distribution (geography), and delineation of sample survey segments (statistics).

Contact prints showing extensive areas in moderate detail were the hottest sellers. They were favored by the forest, utilities, and extractive industries as well as the State and local government units dealing with land management, record keeping, and assessments.

Farmers, realtors, and planning groups, however, generally bought photo enlargements providing greater detail over a smaller area.

Most of the non-Federal customers were pleased with the sharpness and tone of USDA airphotos, but many customers would have preferred more recent coverage. At present, USDA updates its photo coverage about every 5 to 8 years. (9)

## Living Costs in Countryside Aren't Always as Low as People Think

Who are "the poor?"

Under one formula currently used to determine eligibility for government assistance, a family of four in the city is considered poor if the family income comes to only \$3,200 a year. But if this same family moved to a farm, its income would have to drop another \$1,000 before it could qualify for assistance.

It's generally assumed that money goes farther in the country than it does in the city—

but ERS economists doubt that it goes as far as present definitions of poverty assume.

For example, farm families' food bills are supposed to be about 30 percent lower than those of urban families, because home-grown foods represented about 30 percent of the total value of food used by farm families in 1965.

But not every farm family is able to grow its own food. In fact, a recent survey showed that fewer than 5 percent of the very poor farmers (with incomes under \$1,000) in the Ozarks and in the Mississippi Delta had home gardens. And even those with gardens usually didn't produce any meat or poultry—important but expensive parts of a good diet.

So while homegrown food does substitute for store-bought food to some extent in rural America, for many families it doesn't substitute as much as poverty definitions assume.

None of these definitions take transportation into account. It eats up a much higher share of farm families' incomes than it does of urban families' incomes—nearly 22 percent, compared with 15 percent. Nor do present poverty guidelines recognize the higher utility bills that many rural families pay for services in less densely settled areas.

Medical bills, too, often loom larger for the self-employed farmer who must meet his family's medical expenses with out-of-pocket cash, while the city dweller often gets fringe medical benefits along with his job.

There are indirect costs of living in rural America, too—costs that poverty definitions can't count. The quality of housing, medical, and educational facilities in farming areas is often far below that in town. As a result, the farm poor are apt to be much worse off than the urban poor—and farm families generally have more limited opportunities to escape their plight. (10)

## Wave of Outmigration From Rural America Abates During 1960's

The decade of the 1950's was a disaster for many rural areas, as residents left the countryside in droves.

Of course, it wasn't until well into the 1960's, when all the data from the last population census had been tabulated, that the true extent of the exodus became known.

Will the 1960's be a repeat of the '50's?

Only next year's census can really answer this question, but estimates of population made by the Bureau of the Census for all counties in 1966 indicate that the mass exit from the countryside may well have ended about the time the public first realized it had occurred.

In general, rural counties retained their population much better from 1960-66 than during the 1950's. In the earlier period, they retained only 3.3 million of their 7.9 million excess of births over deaths—thus giving up 4.6 million net migrants to urban areas. However, from 1960 to 1966 the rural counties grew by 2.8 million persons, while only 550,000 of their potential growth from births was siphoned off to other areas.

The growth potential of rural areas was less during the 1960's than in the 1950's. This was partly because so many young people had left in the 1950's.

But despite the lower natural increase, the rural population has been growing faster than formerly. Rural counties had only 20 net outmigrants per 100 gain in population during 1960-66, compared with 150 during the 1950's.

The improvement of the population picture is especially noticeable in the all-rural counties and in those where the population is less than 30 percent urban. During the 1950's, population growth was limited to rural coun-

ties where 30 to 50 percent of the population was urban.

There's been a dramatic drop in the number of outmigrants from the East South Central States—which were big losers during the last decade. These four States, embracing both Appalachian heartland and the Delta and Black Belt areas, had a net of 1.5 million migrants from their rural areas during the 1950's, but only 164,000 from 1960 to 1966.

The region that appears to have done least well in holding its rural populace since 1960 is the West North Central. This area has contributed more recent rural net migration to other areas than any other part of the Nation—some 300,000 persons. Even so, the outflow from the West North Central States is down in both number and rate when compared with the 1950's. (11)



## Population Explosion Impends In Areas Already Beset by Poverty

Four or more children per married woman aged 35 to 44 add up to a population boom. When birth rates in an area start running this high, it takes but a generation for the area's population to double.

Generally, though, you don't find birth rates high enough to trigger a population boom in the metropolitan counties of the United States. Nor do you find them in the rural counties of the Northeast, the lower Great Lakes Region, the Corn Belt, the southern Wheat Belt, and the Pacific States.

However, scattered elsewhere through the Nation are a number of counties—usually rural—where birth rates are high. Often these counties are already characterized by widespread poverty because there aren't enough jobs for the existing population.

Many high birth rate counties are peopled with a comparatively distinctive ethnic population—Negroes, Mexican-Americans, Indians, or Eskimos, for example. In most of these groups, women of childbearing age average five or more children.

At the opposite end of the scale are rural counties with low birth rates—fewer than three children per woman. Many of these counties are located in the Northeast, the central and southern portions of the Corn Belt, the lower Ohio Valley, and the Far West.

Unlike areas where birth rates are high, these counties are difficult to classify culturally. They are primarily white Protestant and include a number of counties that will probably become metropolitan in character in the years ahead. But they have in common the fact that childbearing puts them under only minimum pressure to expand facilities, services, and employment opportunities for future generations. (12)

## Lamb chops or Lap robes

*A sheep rancher in today's market doesn't really need to choose between meat or wool—though most of them do. Improved marketing and breeding make both possible.*

Wool and lambs go together—they both come from sheep—but most producers concentrate on the production of one at the expense of the other. And for many of them, wool is just a sideline.

With the shrinking domestic clip and increased competition among marketing agencies, there is an overall need for improved marketing methods. Competition from foreign wool and synthetic fibers just makes things more difficult.

Marketing through local pools

offers producers an improved bargaining position. But there's room for improvement here, too.

To boost their pool's effectiveness, its members could:

- Incorporate the pool for the members' protection and for its own stability.

- Coordinate sale and assembly dates among pools within regions to encourage buyers to attend all sales and to insure orderly marketing.

- Improve sales negotiations by using standard sales contracts.

- Maintain records on size, quality, and price of wool clips, noting discounts and premiums.

- Maintain complete lists of buyers and send sales notices.

- Provide potential bidders with complete information about

the quantity and quality of wool to be sold.

- Guarantee wool volume offered for sale by using producer signups.

- Evaluate bids on the basis of total returns to the pool and on quality price differentials.

- Obtain market and sales information from reliable wool marketing agencies.

Pool management can either deal directly with buyers or consign their clip to a professional marketer or warehouse.

It's often advantageous for small, local pools to market through larger warehouse facilities.

Warehouses are able to provide services that many pools can't provide effectively for their mem-



bers—such as grading assistance, core testing, and market and price information.

Volume is important to efficient operation of warehouses, and they can keep their costs down when local pools market through their facilities.

In some areas, warehouses have gone beyond simple wool marketing. Some warehouses finance ranch operations, which can provide a source of revenue from loans and an opportunity to offer guidance in wool shearing and preparation—where a large proportion of wool's value can be lost.

Many wool producers aren't aware of the variety of possibilities for marketing their wool. Greater use of pools and warehouses could bring increased efficiency in wool marketing.

And the quality and type of U.S. wool could be improved—without reducing the yield and quality of lambs—by careful selection, breeding, and feeding of sheep. (13)

### ***Facts on Fleece***

U.S. wool growers are likely to receive a little more for their shorn wool in 1969 than the 40 cents a pound, grease basis, indicated for 1968.

Boston prices of most domestic wool, clean basis, during January were between 5 and 10 percent above a year earlier, and U.S. production of wool will be down this year.

Growing consumer incomes and continued low raw wool prices last year sparked a strong recovery in domestic per capita apparel wool consumption. But it was still a little below average.

Mill consumption of apparel wool for January-November 1968 was 6 percent above that for the same period in 1967. And it is expected to go up again this year.

In addition to stepped-up consumer demand and little rise in raw wool prices, mill stocks of wool fabric in relation to orders are relatively low. (15)

## **Economists Pattern a Decision Tool for Cotton Manufacturers**

Raw cottons that can be processed with relatively low cost into high quality finished products are clearly the ones which will be most valuable to the individual cotton manufacturer and to the cotton industry as a whole.

If use value could be measured and reflected in the market price of cotton, a new decision tool would be available to various groups that make up the industry—from developers of new varieties to manufacturers of consumer goods.

The staff at ERS has been working on just that. Using the methods of operations research, they are learning how to find the relative values of various qualities of raw cotton for specified end-uses, under optimum processing conditions for a given model firm.

This information, combined with information on cotton prices, would allow the miller to determine the best cotton or cotton blend for producing each of his products.

The research is complicated because in cotton manufacturing attention can't be limited to final output alone. Efficient experimentation requires analysis of intermediate products and processing stages.

A model plant can be studied during various stages of production. One type of experiment may be a fractionated design that tests for the main effects of from two to many processing factors at a time. Responses would include those connected with intermediate processing stages as well as the final product.

And in carrying out other experiments, certain characteristics of inputs and processing operations are changed by small amounts that might change the output by correspondingly small amounts. In this manner, the re-

lationships between various processing stages can be found.

Experiments like these may not simplify the complicated route cotton travels from field to fabric. But they may make marketing decisions easier. (14)

## **Harsh Southern Weather Results In Slip of Tung Nut Production**

It was the smallest tung nut crop since 1955—only 21,800 tons in 1968 or nearly one-half below 1967. A freeze late in March 1968 in the Deep South was to blame. In our country, tung nuts grow best within 100 miles of the Gulf of Mexico.

The tung fruit is about 2 inches in diameter. It has 4 or 5 seeds from which the tung oil is pressed. Its seeds make up about a third to a half of the fruit's weight—with oil yield averaging around 18 to 20 percent (fruit basis).

The oil is used primarily in drying-oil products like paints and varnishes. And it faces stiff competition from lower priced oils and non-oil substitutes.

Shortly after World War II, oil-based paints began to give way to ones with a water base, and this has cut into domestic use of tung oil as well as of other major drying oils.

The wide fluctuations in annual production, along with large price swings, encouraged users to switch to other materials whenever possible.

Most of the stocks of tung oil are owned or controlled by the Commodity Credit Corporation, since almost our entire domestic output in recent years has been placed under the loan program.

Carryover stocks in November 1968 were just about the same as a year before—66 million pounds of oil.

Due to the lower prices of imports and slipping domestic disappearance, supplies in recent

years have been more than adequate to meet domestic needs.

Since October 1966, sales from the National Tung Oil Marketing Cooperative (in behalf of CCC) totaled 34.2 million pounds at an average weighted price of around 11.6 cents per pound. Sales from the pool have been setting the market price for U.S. tung oil and are expected to continue to do so.

The 1968 crop is being supported at \$64.22 per ton, with an equivalent support of 24.3 cents per pound for tung oil—up 0.3 cent from last year. (16)

### **Texas, Oklahoma Cattle Feeders Prefer a Hereford-Angus Cross**

Feedlot operators in Texas and Oklahoma are pretty particular about the kinds of feeder cattle they want.

In fact, 90 percent of them prefer crossbred feeder cattle, with a Hereford-Angus cross in most demand.

Two-thirds of the Texan feedlot operators look for cattle weighing less than 500 pounds, while the same proportion of Oklahoma operators preferred heavier weights—judging by a study made by the Texas Agricultural Experiment Station and ERS. They surveyed more than 200 representative feedlots in the two States. Weight preferences are related to the size of feedlot operations. Smaller feeders generally preferred the lighter weight stock.

The most common weight range for heifers was 400–500 pounds; most steers weighed in somewhere between 600 and 700 pounds.

And there's a definite preference about age, too. More than a third of the feedlots surveyed preferred feeder cattle between 6 and 8 months old.

Another 40 percent wanted feeder cattle between 12 and 20

months old.

As for sex differences, close to half of the feeders preferred steers, 38 percent bought heifers, and 17 percent had no preference, but watched market conditions and price differentials before deciding which to purchase.

What menus did they offer



their feeder cattle?

Concentrates made up three-fourths of the ration in Texas and about two-thirds of the total in Oklahoma. Grain sorghum or milo, the single most important feed item, filled 60 percent of the ration in Texas, 50 percent in Oklahoma. Most of the roughage was from silage but it also included cottonseed hulls, alfalfa hay, and green chop.

The Texans bought almost all of their feed grains from sources within their State. Oklahoma depended on Texas and Kansas sources for their feed. (17)

### **Programed Feed Formulas Bring Greater Efficiency to Producers**

Given costs and nutrient values for each ingredient, and specifications for a feed formula, a computer can calculate the least-cost combination of ingredients that will do the job.

All this can be done on relatively small, low-cost computers that most feed manufacturers can afford.

But it can cause a muddle, too.

Single-product formulation doesn't take into account the whole picture of supplies on hand, the plant's capacity, its current feed sales, or other feeds produced by the plant. So it's possible that a least-cost formula for a given product may be computed but can't be applied because of one or another deterrent factors outside the formula.

By moving to a slightly larger computer operation, least-cost formulations for a number of feeds can be computed together, taking into account the feed manufacturer's procurement and sales patterns as well.

Tests have shown that feed manufacturers who use this multiproduct formulation technique realize about \$3.00 per ton more profit than those who do their computations on a single-product

formulation basis.

But there's usually one drawback to a computer system that can handle all the information needed for multiproduct formulation—its size.

If a full-line mixed feed company makes 70 feeds, it takes 35 separate formulation steps to compute least-cost formulas per feed. This means a lot of programming. Add 100 to 200 more calculations for procurement and marketing control and it's a big package.

Fortunately for the smaller feed manufacturer, economists have developed a "compacted matrix" technique to cut the calculations down to size. Using this technique can reduce the computer work to a tenth of its original dimensions. So any size feed company could comfortably use multiproduct least-cost formulation, along with the compacted matrix.

At the heart of the compacted formula is a series of computer-generated least-cost formulas. Four or more computed formula variations for each feed are stored in the system and updated as conditions change.

So at all times a sufficiently diverse pattern of formulas is stored in the system to insure maximum flexibility for the feed manufacturer. (18)

### **Food Service Future—Microwave Ovens in No-Kitchen Restaurants**

At one time, any man, woman, or couple who thought they could cook, felt they could open an eating place.

And just 10 years ago, a prospective restaurateur could buy a building, invest about \$15,000 in remodeling and equipment, and come up with a nice restaurant. (A good cook, of course, would add to his chances of success.)

With all the developments in food service equipment and tech-

nology, a businessman today usually has to start from scratch—building and all—with a minimum investment of \$100,000 to \$200,000.

How long a man can stay in business with this size of investment will depend on his management prowess. He can't afford hit-and-miss methods. He can't afford poor food, untrained, disinterested employees, or unnecessary costs.

And in addition to larger investments in buildings and equipment—or it may be because of these—we are seeing changes in corporate structure. Some chain organizations are opening outlets nationwide. Others have them worldwide.

Vending machine companies are going into extensive food production—and some are branching out into other forms of service.

Franchise operations, though still small, appear to be growing; and we have equipment firms buying out food services.

Changes won't be limited to the business structure of food service. There'll be changes in food technology, too.

Some of it's happening already. There's a freeze-dried scrambled egg mix, and other foods. And there's fully cooked roast beef, packaged and ready to slice and serve. And gourmet entrees prepared on the east coast for tables in the West—to name a few.

Each new product brings greater sophistication in use of coloring and flavoring, improvements in packaging, and refinement of processing methods.

The new microwave ovens will even permit "no-kitchen" restaurants. Fully prepared entrees can be stored compactly in a freezer, removed and heated up in a minute to a customer's order.

Other innovations the future might hold include synthetic aromas to promote the specialty-of-the-day, underwater hotels, and completely mechanical restaurant service. (19)

### **Innovations Bring Upswing In Food Manufacturing Productivity**

Output per man-hour rose more rapidly in food manufacturing between 1957 and 1967 than in all other manufacturing industries. It also outstripped man-hour output in the entire private sector of the economy.

The annual rate of growth was 3.8 percent for food manufacturing, compared with 3.5 for all manufacturing and 3.3 for all private enterprises.

The upswing in food manufacturing productivity is attributed to a combination of things.

Above all, technology is making itself felt. Many technological innovations have been adopted, such as cattle-on-the-rail dressing systems, continuous processing methods, automation, and conveyorization.

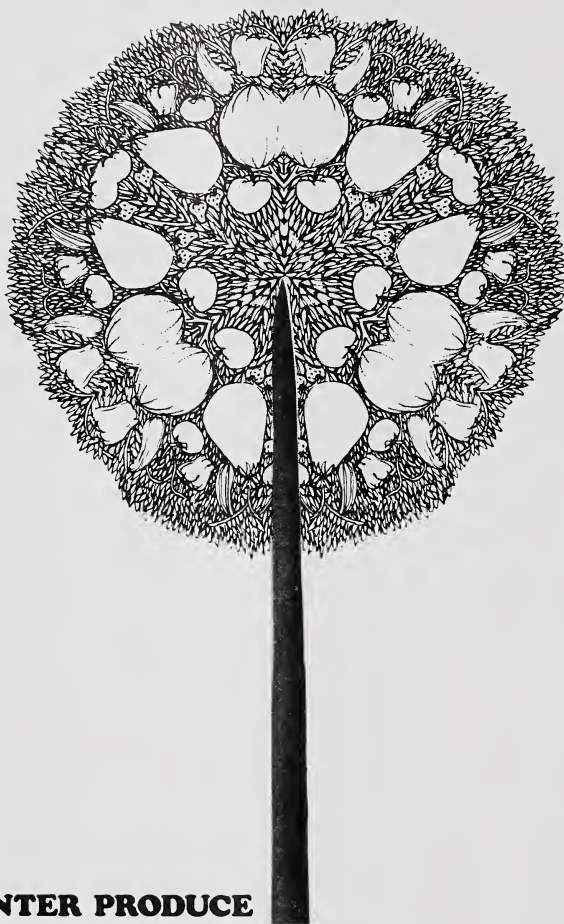
This adoption of technological improvements involved substituting capital for labor to a considerable degree, and expenditures for plants and equipment have been increased.

Food and beverage manufacturers spent an average of \$1.35 billion yearly on new plant and equipment during 1965-67. This represented an increase of 78 percent from comparable outlays in 1954-56, when these expenditures were fairly stable.

Credit for greater productivity also goes to research and development. The food-and-kindred-products industry spent \$166 million in this area in 1966—a jump of 159 percent over 1956.

And the industry has also benefited from research done by the chemical industry, the food machinery industry, and the electrical industry—as well as universities and government agencies.

Last but not least, an increased emphasis on education and on-the-job training has upgraded management and labor within the food manufacturing industry as a whole. (20)



## WINTER PRODUCE

*Winter sales of fresh tomatoes, cucumbers, strawberries, and other produce have shot up fast in recent years, but not without growing pains for suppliers both at home and South-of-the-Border.*

Competition knows few boundaries.

The Mexican-U.S. border is no exception. It can be likened to the fence of a vast winter garden yielding plentiful supplies of vegetables that neighbors on the northern side of the fence have come to expect on their tables the year-round:

Tomatoes mostly—and along with them, cucumbers, green peppers, and eggplant. Canteloups and strawberries, too.

Demand for this fresh fruit of the garden during our U.S. cold months (ranging from November to

May) has been rising along with population numbers and income.

This has increased the importance of “winter” supplies. It has intensified competition for the big consumer market. And it has created problems of international as well as interregional adjustments in production and marketing of this valued fresh produce.

The adjustments that result from the efforts of large numbers of producers—shifting resources among enterprises in pursuit of the highest attainable income—usually tend to follow the economic principle of “comparative advantage.”

What are the comparative advantages held by Mexico, Florida, and California—the major areas that grow winter vegetables for U.S. markets?

In an effort to answer this question, the Eco-

conomic Research Service has closely examined production, marketing, and international aspects of major items of winter produce. And here are some of its findings:

Our imports of fruits and vegetables from Mexico were valued at about \$19 million in 1956. In 1967, they were approaching \$100 million.

By the end of the 1950's, our producers had already become somewhat alarmed over Mexico's growing share of the U.S. winter vegetable market. Loss of Cuba as a production base, termination of the bracero program, and development of transport and irrigation facilities in west Mexico added impetus to Mexico's growth as a supplier of winter produce.

California and Texas had climate disadvantages which quickly forced them into minor positions as winter supply areas of fresh produce for U.S. consumers after Mexico began to expand its output. The Florida vegetable industry began to feel pressure from the Mexican industry around the mid-1960's.

*Tomatoes* fill the biggest part of the winter produce basket we import from Mexico. They account for 71 percent of the value of all fresh vegetable imports from South-of-the-Border. The competition picture looks like this:

—The cost of producing vine ripe tomatoes in Mexico is about two-fifths that of Florida. (The ratio may be more or less for individual production inputs.)

—Marketing costs for tomatoes from the farm in Mexico to shipping points on the U.S. side of the border are higher than from farm to shipping point in Florida. But the total cost delivered to Chicago is about even for both areas.

—Mexico has a slight cost advantage to markets in our western States; and Florida has a slight advantage from Chicago to the east coast.

—Given its advantage in cost of production and climate for winter production, Mexico could continue to expand its shipments of vine ripe tomatoes to the United States. And Florida production of vine ripens during the winter season probably will continue to decline under normal competition.

—Because of lower production and marketing costs, Florida mature green tomatoes should be in a somewhat stronger competitive position than Florida vine ripens. Florida has dominated the market for mature green tomatoes to date. It can be expected to retain a strong competitive position for this type of tomato.

*Peppers and eggplant* from Mexico are increasing in West Coast markets. But for the near future at least, Florida will retain a firm competitive position in central and eastern U.S. markets. Pre-harvest cost of pepper production is higher in Mexico.

Florida *cucumbers*, supplemented by offshore (Caribbean) supplies, share the winter marketing season with Mexico. So far, supplemental shipments from offshore have enabled people who handle Florida cucumbers to resist market expansion by Mexico. By spring, Florida takes over.

Looking at the comparative costs for Florida and Mexico, this is understandable. It also helps explain why Mexican cucumbers have not gained as much market coverage as tomatoes.

Mexico is uncontested in the winter and early spring *cantaloup* market. There are no domestic challenges from Florida or elsewhere. But in the spring, after western domestic supplies become available, Mexico has difficulty competing. And Mexico's competitive situation in the spring market appears to be worsening.

Mexican *strawberries* give U.S. domestic supplies a hard time during the winter. Though small in economic importance, they have been more competitive than tomatoes during our domestic off-season.

Despite higher marketing costs than Florida, Mexican berries have commanding shares in major eastern U.S. markets. Strange as this may seem, no contradiction is involved.

The Mexican crop is double purpose—for fresh market and for processing. This allows the top of the crop to be marketed as fresh

### Red and Green

Tomatoes for the fresh market come in two types: "Staked" (ripened on the vine); and "ground" (picked at the mature green stage).

Mature green tomatoes are sent north to ripen in rooms near the market. Then they are graded, sized, and packed in cellophane tubes. Therefore, they are usually harvested when an acceptable size, with little concern for maturity.

Cost of Florida production of mature greens in 1967/68 (not counting harvesting) averaged about 63 cents a 20-pound lug—the lowest U.S. production cost for *winter* tomatoes. However, Texas *fall and spring* mature greens can be grown for less.

To the extent that the American consumer will substitute mature greens for vine ripens, they can probably compete with Mexican vine ripens. And Mexico exports almost no mature green tomatoes. (21)

## WINTER PRODUCE: TOTAL COST TO PRODUCE, MARKET, AND DELIVER

Crop and producing area 1967/68	Container	Destination		
		New York	Chicago	San Francisco
<i>Dollars per container</i>				
Tomatoes, vine ripe:	20-lb. lug			
Florida		2.58	2.63	2.93
Mexico		<u>2.88</u>	<u>2.56</u>	<u>2.34</u>
Difference, Mexico minus Florida		.30	-.07	-.59
Cucumbers:	Bushel			
Florida		4.25	4.30	4.95
Mexico		<u>7.02</u>	<u>6.33</u>	<u>5.87</u>
Difference, Mexico minus Florida		2.77	2.03	.92
Peppers:	Bushel			
Florida		3.44	3.54	3.94
Mexico		<u>5.90</u>	<u>5.34</u>	<u>4.97</u>
Difference, Mexico minus Florida		2.46	1.80	1.03
Eggplant:	Bushel			
Florida		2.80	2.90	3.30
Mexico		<u>3.99</u>	<u>3.41</u>	<u>3.02</u>
Difference, Mexico minus Florida		1.19	.51	-.28
Cantaloups:	88-lb. crate			
Texas, Rio Grande Valley		7.20	6.41	6.91
Mexico		<u>12.77</u>	<u>11.73</u>	<u>11.03</u>
Difference, Mexico minus Texas		5.57	5.32	4.12
Strawberries:	12-pint flat			
Florida		3.06	3.11	3.37
Mexico		<u>3.42</u>	<u>3.14</u>	<u>2.95</u>
Difference, Mexico minus Florida		.36	.03	-.42

berries, which presumably show up well in the market alongside crop-average quality berries from domestic sources.

What's more, the processing alternative furnishes Mexican shippers with a flexible market outlet. They have a cushion to fall back on if the export market is weak. And they have a ready source of berries if the market is receptive.

Thus, continuing pressure from Mexican imports will probably discourage expansion in the Florida strawberry industry. (21)

### Drop in '68 U.S. Farm Exports Tied to Variety of World Events

Events of 1968 had both favorable and unfavorable consequences for foreign trade.

For the United States, they brought a decline in agricultural exports. Value of last year's exports slipped to \$6,228 million from \$6,383 million in 1967.

British devaluation of the pound in November 1967 had its repercussions in 1968. Our agricultural exports to the United Kingdom fell to \$374 million—

lowest level since 1954.

French student riots that developed into nationwide strikes and an economic crisis caused a sharp drop in our exports to France during June. But shipments in following months absorbed most of the loss, so that U.S. agricultural exports to France for the whole year were only off 3 percent from 1967.

In European countries as a whole, somewhat stagnant economies picked up, except in Spain and the United Kingdom. Other factors more directly affected our agricultural exports—adversely:

—World grain supplies and harvests were larger than the year before in both importing and exporting countries.

—Trade policies of several of our major foreign markets perhaps caused some decline or held down growth of U.S. sales.

For example, Japanese policy initiated in 1967 encouraged purchases of farm products from developing countries with bilateral arrangements. Emphasis was given to purchases from such countries as Thailand, Indonesia, Cambodia, and several East African countries—in order to diversify sources of supply and try to adjust the imbalance of trade between Japan and these countries.

The European Common Market's unification of internal grain prices in mid-1967 had further impact on our exports to that area.

U.S. exports of farm products to the EEC dropped 6 percent in 1968 from the 1967 level. This was a bit more than the 4-percent decline in our total farm exports. The decline in exports to the EEC was due to the 8-percent lower value of our exported products subject to the EEC variable import levies. Value of nonvariable-levy commodities we sold to the EEC decreased 5 percent.

Despite the overall decline in our agricultural exports last year, 1968 export earnings were still 10

percent above the 1961-65 average. Tobacco and vegetables were the major gainers.

Nonagricultural exports rose 12 percent in 1968, to reach \$28 billion. This increase, coupled with the decline in agricultural shipments, reduced agriculture's share of total exports to 19 percent. It was 21 percent in 1967.

On the import side, continued U.S. economic expansion and the stronger demand for raw materials and consumer goods brought gains for nearly all types of imports.

Our agricultural imports in 1968 rose to their highest level since 1951. The value was \$5.0 billion in 1968, against \$4.5 billion in 1967.

Nonagricultural imports, at \$28.0 billion, were 25 percent over 1967—nearly double the rate of increase for agricultural imports. (22)

## Livelihood for Many a Dane Depends on Pork and Co-ops

Livestock and livestock products—including dairy and poultry—have accounted for over 90 percent of agricultural sales in Denmark since 1963. And though Denmark is one of the world's smallest countries, it is one of the biggest pork producers in the world.

The Danish farmer who doesn't depend on the services of one or more cooperative associations is a rarity. Virtually all Danish agriculture is organized on a cooperative basis.

Farmers may thus enjoy the benefits of large scale production and distribution even though their farms are fairly small (average size of a Danish farm in 1967 was around 40 acres).

About 90 percent of all pork and milk is marketed through co-ops, and about 50 percent of all eggs and poultry.

Different local cooperatives

handle various farming needs. A Danish farmer might, for example, belong to a local Consumer Society, Cooperative Dairy, Machine Station, Poultry Slaughterhouse, Feeding Stuff Society—or any other of 12 specialized local groups. Each of these is affiliated with one or more of 29 national organizations.

Most of the cooperatives fall into one of three main categories: Consumer Societies (wholesale and retail societies); Purchasing Societies (suppliers of farm inputs); and Production Societies (including export associations and slaughterhouses). Credit institutions are also part of the system. The Cooperative Bank, Andelsbanken, is one of Denmark's four largest banks.

Cooperative Export Associations work closely with commercial export firms—such as Oxexport, which buys cattle direct from co-ops.

One thing required of all farmer cooperative members is that they deliver products to their cooperative associations for agreed-upon periods so that export quotas may be met. And while cooperatives are relatively free of direct government control, export products undergo rigorous quality control by the government. (23)

## *It's a Young World*

Our earth may be old, but its populace isn't. More than half the world's people were under 25 in 1965.

Six in every 10 people living in Africa, Latin America, and South Asia in 1965 had still to reach the quarter-century mark.

On our own continent and in East Asia and Oceania the proportion was a bit lower—only five out of every 10.

Only in the Old World—in Europe and the USSR—were young people outnumbered by their elders. The under-25 group made up only about two-fifths of these regions' population. (24)

## Consumers Count on Mozambique For a Big Helping of Cashews

Over 84 million pounds of cashews, worth \$44 million—with somewhere around 125 billion calories included.

That was the size of our cashew imports for the year ending June 30, 1968 (we don't grow any commercially ourselves). The incoming cashew cargo weighed nearly 20 million pounds more than it did in 1966/67. The value was up about \$9 million.

The world's main cashew supplier is one of the least developed areas of the world—Mozambique (an overseas Portuguese province on the southeast coast of Africa). We're its best cashew kernel customer.

Mozambique got its start in the business about 400 years ago when cashew trees were brought in from Brazil. The trees bear both a fruit and nut at the same time. The pear-shaped edible fruit, called a cashew apple, is about three times the size of the nut—an appendage at the blossom end of the fruit.

Some European-owned plantations are beginning to cultivate cashews. But Africans collect and sell most of the crop.

Prices are poor and picking is disorganized. Many nuts go to waste because trees are inaccessible. Yet Mozambique still produces twice as many cashews as its nearest competitor, India.

Most of Mozambique's crop was formerly sent to India for decorticating (shelling) and eventual re-export. Half to two-thirds of the crop still goes to India for shelling. But since 1964, Mozambique's own modern plants shell an increasingly larger part of the harvest.

In fiscal '68, about 17 million pounds of U.S. cashew kernel imports came directly from Mozambique, and 61 million pounds from India. (25)



*Trial by consumer jury is but part of the gamut that most new foods run before they actually reach the market. Here are the proceedings of one such consumer trial.*

One morning in May of 1967, the Tuckers of Pittsburgh sat down to a breakfast of eggs and bacon, toast, and grapefruit juice.

None of the Pittsburgh papers covered the story, but it was a newsworthy breakfast. For one of the items on the Tuckers' menu was on trial.

Most new food products undergo consumer testing before they actually get to the market. In this case, the Tuckers were going to pass judgment on the grapefruit juice—made from foam-mat dried grapefruit crystals. But they could just as well have been testing any one of the myriad new food products which are developed each year.

Launching a new food product is a bit like launching a space capsule. Both take a lot of care and carry a high risk. The grapefruit crystals had already been tested and retested many times under carefully controlled laboratory conditions before home placement tests were even considered.

Once the decision was made to let consumers into the act, specialists in USDA's Statistical Reporting Service got to work on the details of home placement tests. USDA handled the tests, in

this case, because the crystals were developed by USDA researchers in Winter Haven, Fla., aided by the Florida Citrus Commission.

One of SRS' first tasks was to select the consumers to test the product. This they did with the assistance of a private market research firm chosen to help with the project.

The metropolitan area of Pittsburgh, Pa., was chosen from a list of U.S. cities. Then the members of over 400 Pittsburgh households were selected for testing the product. The specialists picked about 200 households where grapefruit juice was standard fare, 200 households where it wasn't.

Meanwhile, other SRS people were thinking up the questions that would ultimately be asked of the consumers who tested the new product. Wording such questions is difficult. They must elicit the reactions and built-in prejudices of consumers without revealing the questioner's own partialities or hopes for the project.

At the same time, USDA was making enough crystals for the experiment and the Florida Citrus Commission and a private firm in New York City were designing a package for the grapefruit juice crystals. A green and yellow pre-formed pouch of laminated paper foil polyethylene was the result.

A visit with the chosen homemakers was the first step in the

**NEW  
PRODUCTS:**  
Trial by jury

actual home placement test. Interviewers questioned these homemakers on their opinions of grapefruit juice in general—and their reaction to the concept of crystals. Some background information on the family was also obtained—and then a supply of crystals was left with the family.

The homemakers were asked to serve the juice at least once to each member of the family who was 12 or older. Each taster was asked to fill out a card on which he could rate the crystals and make comments.

About a week later the interviewers returned to get the families' reactions to the crystals and to leave more of the test product—sweetened crystals where unsweetened had already been tested, and vice versa. A final call was made later to learn the households' opinions of the second batch of crystals.

SRs researchers had to analyze the testers' comments—which were, of course, colored by their feelings toward grapefruit juice and powdered drinks.

For example, testers in homes where grapefruit juice had not been served in recent months were less partial to the product than members of "user" households. And the sweetened version seemed to be a little more popular than the unsweetened.

When all the evidence of the trial was weighed, foam-mat dried grapefruit juice crystals seemed fairly successful.

Homemakers had liked the concept of crystals as described to them before they actually received the product. They assumed it would be quick and easy to prepare and would require little or no refrigeration and very small storage space.

However, the tests indicated there was still a flavor gap between the crystals and high quality frozen concentrate and canned grapefruit juices. Closing this gap would probably enhance the chance that foam-mat dried

grapefruit juice crystals could be successfully marketed.

What's right with the product in the eyes of consumers? What's wrong with it? How can it be improved?

This is what new products' trials by consumer juries are all about. The verdict is crucial to marketing success. (26)

### *Supping and Sipping*

U.S. consumers spent upwards of \$116 billion on food and drink in 1968.

Of that total, nearly \$101 billion went for food, about 7 percent more than in 1967. But disposable personal incomes rose nearly 8 percent, which meant that the share of income spent for food dropped fractionally to 17.2 percent last year.

A little more than 13½ percent of disposable income was spent for food at home in 1968, and about 3½ percent went for food away from home.

Spending for food away from home came to about a fifth of total 1968 expenditures for food.

Last year's total of \$101 billion does not include businessmen's spending for meals eaten away from home and charged to expense accounts. Such spending may amount to 4 or 5 percent of the total market for food in the United States. In that case it would account for around one-sixth of the away-from-home eating market.

Omitted, too, was another \$1 or \$2 billion worth of food furnished to government institutions such as prisons, food distributed free by the government, and food sold as a "package" component with other goods and services—such as that provided to airline passengers.

An estimated \$15 billion was spent by consumers on alcoholic beverages in 1968.

ERS economists estimate about two-fifths of this total went for drinks away from home; the remainder was spent for alcoholic drinks at home.

Out of our total bill for both food and alcoholic beverages used at home, one-tenth was estimated to be for spirited beverages while the rest went for food. (27)

## **Processing Puts a Bloom on Just About Everything in the Food Line**

Fresh fruits. Canned vegetables. Fluid whole milk. Cheese. Wheat flour. Ready-to-eat cereal. Fresh meat. Frozen shrimp.

Which of the above are processed foods?

If you omitted any from the list, you failed the quiz. For all of the foods mentioned are processed, to some degree.

Even so-called fresh foods receive a once-over-lightly on the processing line. They're washed, "dressed," sorted, milled, or refined. And nearly all are neatly packaged by the time they reach the grocery store.

A recent survey of household food consumption indicated that about 95 percent of the foods we ate in 1965 passed through the marketing system.

About half of what we spent for food at home at that time went for the so-called fresh items. This was down from about 55 percent of total spending in 1955. Meanwhile, our share for foods with additional processing (from canned to convenience items) climbed from 45 to 50 percent.

Livestock products are more apt to get off the processing line before crop products. Only about two-fifths of the animal foods we eat get the full processing treatment, as opposed to more than three-fifths of the crop products.

In the spring of 1965, nearly a tenth of the value of our food reached us in cans, while another tenth arrived baked. Frozen, dried, smoked, or cured foods represented another tenth of the total. The remainder of the food that got a full processing treatment came out in miscellaneous forms such as chips, pickles, cheese, candy, or soft drinks.

Compared with 1955, a larger share of the total was frozen, baked, or processed in a variety of ways. About the same share was canned, dried, or cured. (28)

**AGRICULTURAL FINANCE REVIEW.** Agricultural Finance Branch, Farm Production Economics Division, Vol. 29, February 1969.

Contents of this annual publication include five by-line articles in addition to agricultural finance highlights of the year and a book review section.

**QUANTITY INDEXES OF U.S. AGRICULTURAL EXPORTS AND IMPORTS.** D. H. Rahe, C. Cogrove, and J. R. Corley, Foreign Development and Trade Division. ERS-For. 253.

The quantity index of U.S. agricultural exports in fiscal year 1968 stood at 148, third largest in history.

The report supersedes a 1960 publication on quantity indexes, which provide a measure for comparing today's export-import trade with our international trade of the past.

**PREDICTING FARM ORGANIZATION WITH MAXIMUM-PROFIT LINEAR PROGRAMING MODELS.** C. K. Gee, Farm Production Economics Division, and J. A. Edwards, Oregon State University. Ore. Agr. Expt. Sta. Special Rept. 260.

The purpose of this study was to investigate factors which may limit linear programing as a pre-



## RECENT PUBLICATIONS

*The publications listed here are issued by the Economic Research Service and cooperatively by the State universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective States.*

dictive tool in agricultural supply response studies.

**FINANCING EXPANSION TO LARGE-SCALE DAIRY FARMING.** R. A. Benson, Farm Production Economics Division, and J. R. Brake, Michigan State Univer-

sity. Mich. Agr. Expt. Sta. Research Rept. 76.

Pressures to increase income or lower unit costs will probably cause Michigan dairymen, as well as those all over the United States, to increase their herd size. This report pinpoints some of the problems encountered in expanding herds.

**FOOD COSTS; RETAIL, FARM, MARKETING.** Marketing Economics Division, Misc. Pub. 1133.

The increase in food costs since 1964 has been more rapid than it was during the early 1960's. Even so, retail food costs have increased less than the Consumer Price Index of all goods and services. Incomes also have risen more than food prices.

**RISK AND UNCERTAINTY IN LETTUCE PRODUCTION IN SALINAS VALLEY, CALIFORNIA.** C. V. Moore, Farm Production Economics Division and J. H. Snyder, University of California. Calif. Agr. Expt. Sta. Research Rept. 300.

The Salinas Valley of California, "Salad Bowl" of the United States, is the largest U.S. producing area for summer head lettuce and also produces more than 20 other vegetable crops—all requiring careful cropping plans to minimize risks.

### *Numbers in parentheses at end of stories refer to sources listed below:*

1. Philip T. Allen, "Farm Credit," The Structure of Six Farm Input Industries, ERS-357 (P); 2. M. M. Lindsey and A. M. Heagler, Cotton Harvesting in the Yazoo-Mississippi Delta, Miss. Agr. Expt. Sta. (M\*); 3. Farm Cost Situation, FCS-40 (P); 4. R. D. Johnson and A. R. Eckert, Cattle Feeding Costs in Nebraska by System of Feeding and Size of Operation, Neb. Agr. Expt. Sta., SB-496 (P\*); 5. Velmar W. Davis (SM); 6. Wayne D. Rasmussen (SM); 7. W. W. Reeder and N. L. LeRay, Farm Families Under Stress: Reactions to Social Change in St. Lawrence County, New York 1949-62, Cornell Univ. Agr. Expt. Sta. (M\*); 8. Walter E. Sellers, Jr., Farm Labor Trends and Outlook (S); 9. Orville E. Krause, Airphoto Use in Resource Management—A Survey of Non-Federal Purchasers of ASCS Airphotos (M); 10. O. Wendell Holmes, Some Problems in Identifying the Farm Poor (M); 11. and 12. Calvin L. Beale (SM); 13. Charles A. O'Dell, An Analysis and Evaluation of the Domestic Wool Marketing System—Marketing Patterns, Practices, and Operations (M); 14. Preston E. LaFerney, A Model for Evaluation of Cotton Processed by Mills for Specific End Uses, TB-1401 (P); 15. The Wool Situation, TWS-86 (P); 16. Fats and Oils Situation, FOS-246 (P); 17. R. A. Dietrich, The Texas-Oklahoma Cattle Feeding Industry, Texas Agr. Expt. Sta. (M\*); 18. J. C. Snyder and T. L. Guthrie (SM); 19. William S. Hoofnagle, The Food Service Industry in the Space Age

(S); 20. Leland Southard, "Labor Productivity in Food Manufacturing," Marketing and Transportation Situa., MTS-171 (P); 21. Farm Production Economics Division, Marketing Economics Division, and Foreign Development and Trade Division, Supplying U.S. Markets With Fresh Winter Produce—Capabilities of U.S. and Mexican Production Areas, AER-154 (P); 22. Joseph R. Corley, "U.S. Agricultural Exports Totaled \$6.1 Billion in 1968," For. Agri. Trade, March '69 (P); 23. Marshall H. Cohen, The Agricultural Economy and Trade of Denmark, ERS-For. 244 (P); 24. Economic Development Division, Age of Transition: Rural Youth in a Changing Society, AH-347 (P); 25. U.S. Foreign Agricultural Trade By Commodities, Fiscal Year 1968 (P), and Ed Missiaen, Mozambique's Agricultural Economy in Brief, ERS-For. 249 (P); 26. Margaret Weidenhamer, A Review of Consumer Research on Citrus Products Conducted by the Statistical Reporting Service (S); 27. National Food Situation, NFS-127 (P); 28. Stephen J. Hiemstra, Consumption of Processed Foods in the United States (S); 29. Donald S. Kuryloski (SM).

*Speech (S); published report (P); unpublished manuscript (M); special material (SM); \* State publications may be obtained only by writing to the experiment station or university cited.*

# ECONOMIC TRENDS

ITEM	UNIT OR BASE PERIOD	'57-'59 AVERAGE	YEAR	1968		1969	
				FEBRUARY	DECEMBER	JANUARY	FEBRUARY
<b>Prices:</b>							
Prices received by farmers	1910-14=100	242	260	257	262	263	267
Crops	1910-14=100	223	228	228	221	220	225
Livestock and products	1910-14=100	258	288	282	296	299	302
Prices paid, interest, taxes, and wage rates	1910-14=100	293	354	349	360	363	365
Family living items	1910-14=100	286	335	330	341	342	344
Production items	1910-14=100	262	292	290	296	296	299
Parity ratio		83	73	74	73	72	73
Wholesale prices, all commodities	1957-59=100	—	108.7	108.0	109.8	110.7	111.0
Industrial commodities	1957-59=100	—	109.0	108.3	110.3	110.9	111.3
Farm products	1957-59=100	—	102.2	101.3	103.3	104.9	104.8
Processed foods and feeds	1957-59=100	—	114.1	113.3	114.7	116.0	116.1
Consumer price index, all items	1957-59=100	—	121.2	119.0	123.7	124.1	—
Food	1957-59=100	—	119.3	117.4	121.2	122.0	—
<b>Farm Food Market Basket: <sup>1</sup></b>							
Retail cost	Dollars	983	1,118	1,100	1,129	1,138	—
Farm value	Dollars	388	434	424	436	446	—
Farm-retail spread	Dollars	595	684	676	693	692	—
Farmers' share of retail cost	Percent	39	39	39	39	39	—
<b>Farm Income:<sup>2</sup></b>							
Volume of farm marketings	1957-59=100	—	126	97	144	127	98
Cash receipts from farm marketings	Million dollars	32,247	44,065	2,889	4,097	3,696	3,000
Crops	Million dollars	13,766	18,424	953	1,953	1,466	1,000
Livestock and products	Million dollars	18,481	25,641	1,936	2,144	2,230	2,000
Realized gross income <sup>3</sup>	Billion dollars	—	50.8	—	51.1	—	—
Farm production expenses <sup>3</sup>	Billion dollars	—	35.9	—	36.3	—	—
Realized net income <sup>3</sup>	Billion dollars	—	14.9	—	14.9	—	—
<b>Agricultural Trade:</b>							
Agricultural exports	Million dollars	4,105	<sup>4</sup> 6,228	547	611	178	—
Agricultural imports	Million dollars	3,977	<sup>4</sup> 5,028	402	421	209	—
<b>Land Values:</b>							
Average value per acre	1957-59=100	—	—	<sup>5</sup> 166	<sup>6</sup> 116	—	—
Total value of farm real estate	Billion dollars	—	—	<sup>5</sup> 188.8	<sup>6</sup> 200.6	—	—
<b>Gross National Product: <sup>3</sup></b>							
Consumption <sup>3</sup>	Billion dollars	457.3	860.6	—	887.4	—	—
Investment <sup>3</sup>	Billion dollars	294.2	533.8	—	546.8	—	—
Government expenditures <sup>3</sup>	Billion dollars	68.0	127.7	—	136.6	—	—
Net exports <sup>3</sup>	Billion dollars	92.4	197.2	—	203.0	—	—
	Billion dollars	2.7	2.0	—	1.0	—	—
<b>Income and Spending: <sup>7</sup></b>							
Personal income, annual rate	Billion dollars	365.3	685.8	663.0	713.5	716.1	721.4
Total retail sales, monthly rate	Million dollars	17,098	28,313	27,449	28,347	29,031	29,021
Retail sales of food group, monthly rate	Million dollars	4,160	6,107	5,929	6,139	6,340	—
<b>Employment and Wages: <sup>7</sup></b>							
Total civilian employment	Millions	63.9	75.9	75.6	76.8	77.2	77.7
Agricultural	Millions	5.7	3.8	4.1	3.8	3.8	3.9
Rate of unemployment	Percent	5.5	3.6	3.7	3.3	3.3	3.3
Workweek in manufacturing	Hours	39.8	40.7	40.8	40.7	40.6	40.5
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	3.01	2.94	3.11	3.12	3.12
<b>Industrial Production: <sup>7</sup></b>	1957-59=100	—	165	162	169	169	170
<b>Manufacturers' Shipments and Inventories: <sup>7</sup></b>							
Total shipments, monthly rate	Million dollars	28,745	50,312	48,356	51,494	52,751	—
Total inventories, book value end of month	Million dollars	51,549	88,438	83,408	88,579	88,644	—
Total new orders, monthly rate	Million dollars	28,365	50,599	48,453	53,101	52,939	—

<sup>1</sup> Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1959-61—estimated monthly. <sup>2</sup> Data are on 48-State basis. <sup>3</sup> Annual rates seasonally adjusted fourth quarter. <sup>4</sup> Preliminary. <sup>5</sup> As of November 1, 1967. <sup>6</sup> As of November 1, 1968. <sup>7</sup> Seasonally adjusted.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).



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### Love That Clove

It may not be breathtaking news to everyone, but a wave of garlic appears to be inundating America's culinary sector.

The pungent and flavorful bulb—related to both the onion and the lily—has been a longtime favorite of gourmets elsewhere in the world. But only in recent years has it begun to find a respected place in the refrigerators, on the spice shelves, and in the meals of plain, ordinary U.S. folk who have found their thing in foreign dishes.

And for many, foreign foods without garlic are like life without breath.

Today you'll find cloves of fresh garlic year-round in most supermarkets throughout the land. And dehydrated garlic in its various forms—garlic salt, powder, and flakes—is one of the leading sellers in the spice section, along with concentrated garlic juice.

With demand so strong, U.S. garlic production has been booming for the past 5 years.

California produces almost all of our homegrown garlic. And last year's garlic harvest in California topped 80 million pounds, up from 50.6 million pounds in 1967 and almost double the 1962-66 average.

The 1968 total harvested garlic acreage in California hit an all-time high of 6,400 acres. And the average yield of 12,500 pounds per acre was also a record.

Total value of the 1968 garlic crop at the packinghouse door came to \$7.5 million, while the 1967 crop was valued at only \$5.1 million (29)

## THE FARM INDEX

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